The business view: the contribution of businesses for resilient societies
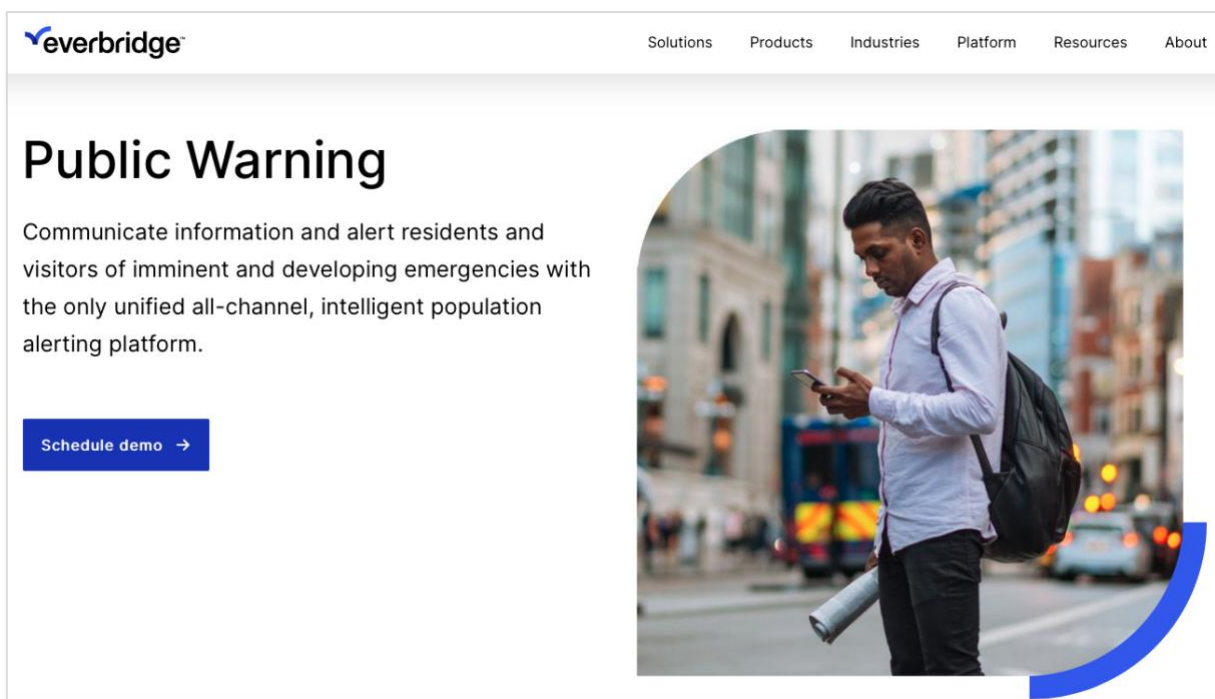
Interviewer: Gareth Byatt – Principal Consultant, Risk Insight Consulting
Interviewees: Dave Wagner – President & CEO
                    Tracy Reinhold – VP & Chief Security Officer
                    Lorenzo Marchetti – Public Affairs Manager
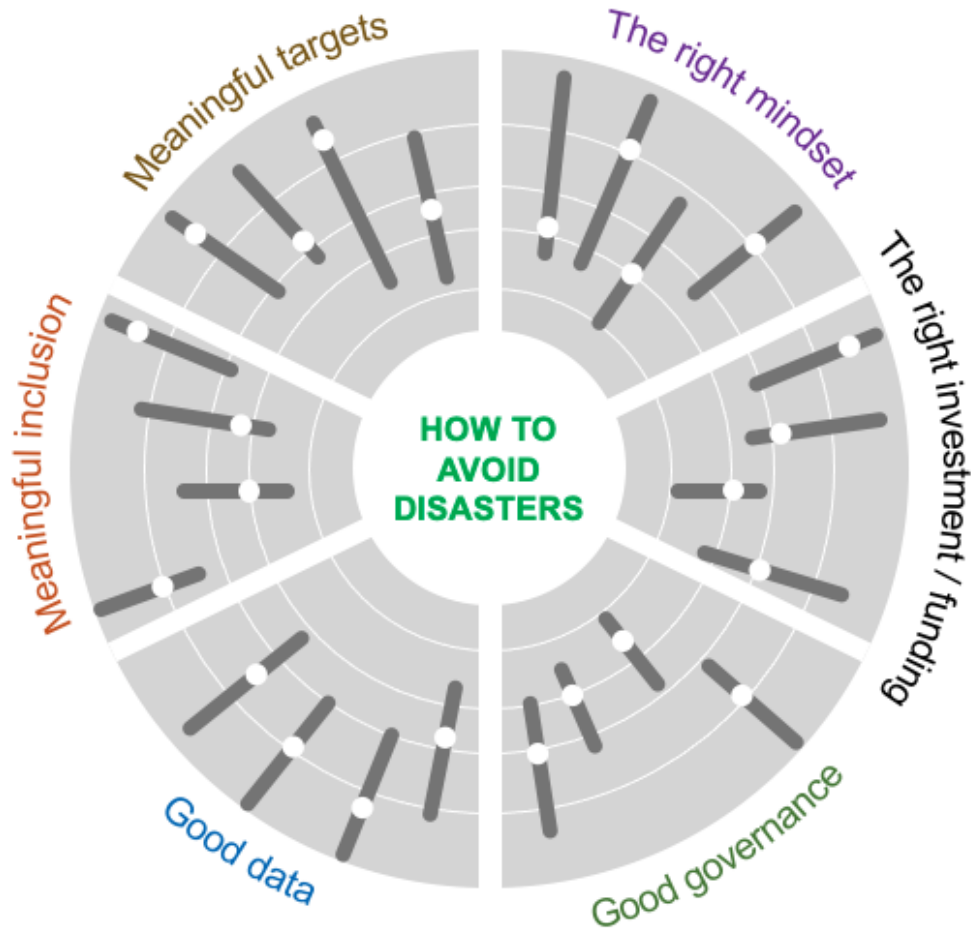   Everbridge

March 2024

Dave, Lorenzo and Tracy

Thank you for making the time to talk with me about the activities of Everbridge, to discuss how businesses around the world can meaningfully contribute towards societal and community resilience, and as an example of this, the work of Everbridge in population alerting and communications systems, including being part of the UN-led Early Warnings for All (EW4All) initiative.

I will make some links during our conversation to an initiative that Ilan Kelman, Ana Prados and I are working on which is called the Disasters Avoided initiative. This initiative focuses on *how we can prevent disasters from happening*. We have developed a six-point model to support the work we are doing, which I may refer to sometimes. I will also make some linkages to my activities in urban resilience, and how to help urban societies be resilient.

The Disasters Avoided project highlights examples of proactive action around the world to avoid disasters.   1

[The Disasters Avoided model](#): G Byatt, I Kelman & A Prados

Could we start with some general context about the Everbridge business and the core services you provide, plus your roles and backgrounds?

Tracy: With pleasure. I am the Chief Security Officer (CSO) for Everbridge. Part of my remit, which is a bit different to a regular CSO role, is to work with our customers to ensure they fully understand the value of how technology can help them to manage and mitigate risk and vulnerability. One of the biggest challenges organisations have today is how they can mitigate potential disruptions to the people they serve / their customers – be they citizens of cities or nations, or employees of companies.

I have been in CSO roles for some time. My first 30 years were in public service roles. My work in public service helps me to link up with our organisations about what it means to be responsible, and how to mitigate potential impacts and accelerate recovery when something happens.

Dave: My background is in cyber security, which I spent 30 years in. Cyber security has always focused intently on risk mitigation, including the use of technology to do so. I was fortunate to see the evolution of Cyber security over time and how some of the ethos of this sector has benefitted other sectors.

When I had the opportunity to join Everbridge, I immediately saw it as a great opportunity to make a significant impact, societally and with many businesses.

[*Everbridge was formed in 2002, after 9/11*](#)*. Our founders Cinta Putra and Steve Kirchmeier realised that people need a multi-channel communications engine to keep people safe. We began by building the industry's most reliable and scalable notification engine to ensure that communications are received without fail when life and organizational safety is at risk. We have since built out a global scalable multi-channel emergency response technology platform, which is the core of what we do.*

The technology began with communities and disaster threats, particularly at the time fire-related threats. We focused on helping communities to reduce the risk of these events, and we have since this time have broadened into all types of public threats. Many of our customers have come from this community. We have also grown to now serve many businesses around the world.

We are seeing in real time the benefit of life-saving technology, for example through the E4All initiative that you mentioned just now. We are now looking at how we take things to the next level, which includes how our customers can use risk intelligence data to be better prepared even earlier to respond. We are focused on "together we are building a more resilient world".

This brings me onto a point about the nature of our work and how people are focused on sharing rather than being protective about their solutions. In the Cyber security world, it was and still is natural to be competitive. For us at Everbridge and our customers, our world is about sharing best in class ideas, and sharing new information and knowledge with competitors.

We have built a platform to bring in all manner of risk events and correlate it for the benefit of all our customers. We are investing in AI to help crisis responders be even better; bringing video to bear to assist in a time of crisis to not just rely on phone calls (to see what's going on and respond as required); and openness – we are driving an open platform, and we recognise that whilst we are just one company, we want to have an open platform to share data.

Lorenzo: *My background is in public policy and strategic communication for business development. I worked for a period at the European Union Mission to the United States in Washington D.C. while I was a student at George Washington University. After completing my MA in International Affairs at Johns Hopkins School of Advanced International Studies I joined Everbridge in the field of public affairs, supporting the company's growth through strategic programs.*

Gareth: Thanks for this overview, everyone. It's very interesting to understand your backgrounds and the ethos of Everbridge including the open approach to sharing information, and the triumvirate of your focus areas moving forwards.

How are you going about developing open solutions?

Tracy: Dave mentioned video just now, and this is an example of how technology solutions can be combined for positive effect. We know that the best way to address disasters is to prevent them from happening, and video can play a key role in this. AI can be used to trigger video, which can provide important value to a city, a local authority or a company. Video has been around for a long time of course, but it has been time-consuming to work out how to use it effectively for disaster risk prevention. If we can set it up correctly, we can protect people faster.

We mentioned just now that there is a willingness for people to work together in our sector. At Everbridge we see ourselves as a partner to those that we work with. We want to help organisations solve problems. We have cities and countries that rely on our technology, and some 6,500 companies as customers as well. We want to provide a seamless connection across the globe, to make the same technology capabilities available everywhere. My role at Everbridge is to open the aperture to help our customers mitigate risk.

To solve problems for our partners there has to be trust in our relationship, and we hope that the openness of our platform is part of helping us achieve this. We focus on listening to our customers, understanding their needs and leveraging our Engineering team to help find solutions.

For sure, we are of course in business to be a profitable entity, of course, yet we are also here to make a societal difference. We find that the two objectives can co-exist.

Gareth: I appreciate this perspective, Tracy, on how openness can help you focus on being a problem solver, and to address challenges for customers as part of contributing towards societal resilience. It's interesting to think about how business resilience is evolving in this respect. I have myself, as a consultant, seen how more and more businesses are focusing on incorporating societal resilience into the plans, such as their business continuity plans (BCPs) and crisis management plans (CMPs), as they are seeing that business and society need to work together.

Dave: Openness requires us to appreciate different points of view and different requirements. Take for example the discussion about video. Our platform can allow for societal differences and requirements. One of the most exciting and leading technology companies in the world is using our data and integrating it into the apps their staff use, wherever they happen to be. They integrate our anonymised alerts data (which can come from other customers) through our open platform to be aware of dangerous situations that may be occurring where they have people working.

As an example of business and community continuity, the Capital region of the US (Washington DC) is an Everbridge customer. The counties in this region recognise the value of openly sharing information with other organisations in the area. If there is an alert at Logan Airport, for example, it can be shared with the customer base in the area, all as part of data sharing.

Gareth: Thanks for these examples, Dave and Tracy. I wonder about whether / how this discussion point links into corporate social responsibility (CSR). Of course, businesses exist to be bona fide profit-making entities, and we are also increasingly seeing evidence that what's good for business is good for society.

Dave: I think this is a very important area for businesses to focus on. We are getting good traction with this ethos. As we think about CSR and other matters of sustainability, we can think about linkages between businesses and the public sector services. Consider for example the utility sector, which operates in much of the US and indeed other countries as a public-private partnership.

In US, we know that wildfires are sometimes being sparked by ageing power grid infrastructure. Boards of power companies recognise the potential loss and damage that can be caused from these risks – societally and to their businesses. We hope that our data can help to support power companies to see the benefits of investing in resilience, to reduce the risk and occurrences of fires. We can help provide data to the system to help to justify these benefits.

Gareth: I have spoken to people in utilities organisations about the challenges they have in dealing with risks. This gets me on to the subject of the economics of avoiding disasters, and how we justify spend to mitigate risks that we do not want to happen. I am often asked if the risk does not materialise, how can we show the degree of value we have added by investing to prevent it.

Dave: I think this is why your work on your Disasters Avoided initiative, in sharing stories and good practices of avoiding disasters is important. For businesses, when their leadership teams decide that something needs to be done to improve resilience, the outputs should be good for everybody. Many studies show that business resilience investment generates good returns for a host of reasons.

Tracy: We should also consider the impacts of staff retention rates in being a societally responsible business. A good resilience record provides stability which is critical for a business to grow and prosper. For us, being in the disaster avoidance business, we want to show appropriate benefits to resilience, naturally. We have years of data that shows the cost of doing nothing – what might be called the "return on regret". Empirical data shows the correlation between good preparedness and resilience and recovery.

So when we talk about the price of avoidance, there is data that shows the benefits of avoiding disasters, societally and to businesses. This data needs to be seen and discussed by people who are in a position to make decisions for their organisations, to decide what action they should take. As part of this, we should think about the potential impact of doing nothing, in a way that resonates with people.

Gareth: One of the ways I look at to think about how events, and near misses, could impact us is with counterfactual thinking, particularly a "downward counterfactual" in which we imagine an event, situation or a near miss could have been a lot worse. Perhaps this can help with the resilience mindset.

You have mentioned how you need to be flexible to adapt to different situations. It's interesting to think about this on a societal level. For example, I was in India in January 2024, and I was able to gain some insights of some of the challenges that exist in this country, and the disaster risks they face. I'm also doing some work that is focused on small islands (particularly the group of Small Island Developing States, or SIDS – a group of islands that has a major conference, SIDS4, in 20204) at the moment, and I know that one of your clients is the island of Trinidad and Tobago. These examples, of nation states, make me wonder about the readiness in different parts of the world to adopt technology solutions, and how best they can do so, in a way that helps them maintain proper ownership and engagement with it.

Dave: I think there are two main things here. First, the technology adoption curve is getting better over time. With our high tech and advanced business customers, they invest in technology because it makes a bottom-line difference to them. We can innovate for them, and over time the new technology we implement can / should improve for everyone – a rising tide lifts all boats.

To your point about India, we are seeing some rapid changes in this country, and the future looks positive overall, I think, whilst appreciating the varied and diverse challenges they have as they seek to improve their economic performance. We have 200 people in India, and we intend to grow the team.

To give you another example, Tracy and I hosted an African delegation in the Fall of 2023. We had 20 groups from a range of countries, and we appreciate that Africa is of course a diverse continent with different needs. One of the things that I heard from listening to people from these delegations was that it is not just a cost of adoption, but also a cost of time taken to organise matters. It can be tricky for governance to be efficient when they are changing, evolving and have many priorities to try to focus on.

In the case of island states, I think that they can often act quickly, given their smaller size. They know they lack certain expertise and they can work relatively quickly with organisations like our own to implement initiatives.

Gareth: Small islands do of course have very diverse cultures, too – both within their regional areas such as the Caribbean, the African Indian Ocean and the Pacific. I know that there are also some great Civil Society Organisations (CSOs) that may be able to add value to the implementation of technology for emergency management.

Tracy: We are very alert to cultural differences around the world. We have local staff that understand the local dynamics and the sensitivities that make sense and work for the partners we work with. There are tremendous opportunities to support societies whilst representing a good investment for states, from small islands to states in large nations.

Gareth: This brings me nicely back to our earlier discussion point about a business' societal purpose and linking it to being a profitable entity for investors. I'd be interested in your views about businesses in all types of sectors (noting that you have customers in a great many of them). I work in various sectors, and I can think of many examples of how BCM links to societal purpose.

Dave: In my view, we are all interconnected. I think we all want to keep getting better at keeping people safe, and to protecting the environment.

Being able to measure and define what we are doing gives us a good baseline. Once we can measure and report on what we are doing, we can then act upon any particular needs identified, to further strengthen resilience and / or plug gaps and address weaknesses. Different companies, organisations and government teams will have different objectives, and we want to understand what these are.
We are always looking at our own ESG disclosures as well, and how we best to measure ourselves and set targets to improve.

Gareth: The 17 SDGs are global-level sustainability goals, with the accompanying Global Indicators aimed at global and national use. Do you find the SDGs valuable, and also the Sendai Framework for Disaster Risk Reduction 2015-2030 as well?

Dave: We certainly see the benefits of the SDGs, whilst noting that some of them are out of our scope to influence. We need to focus on the ones where we can make a difference.

"Together, we move forward" is the key to me; to share best practices and be open with our platform, to make benefits accessible to organisations of all types and sizes. This is represented in SDG 17 (partnerships for the goals).

Tracy: SDG 13 on climate action is another important one for us, in our context. Everbridge can help the world with climate adaptation, to be aware of potential disruptions arising from / linked to climate change and climate-related events. We want to provide advanced warning to people of threats and hazards, which is climate adaptation. This is an important part of how the world lives with the changes that we are seeing.

Our platform sends billions of messages to people every year. We take very seriously the point that these messages can and do literally save lives, whether it is relating to emergency warnings about fires in Australia, floods in Bangladesh or serious disruption in New York.

Whilst we are not in the carbon reduction business, we can play our part for climate adaptation and of course the Sendai Framework which you mention (target g is squarely part of our work, which I know you will be discussing with us later in this interview). I know of examples of people receiving alerts that are saving lives. This is priceless.

Gareth: I've seen through this interview the regular linkages to municipal authorities, local authorities, and nation states as being part of your customer base. I would be interested in any final thoughts you have on areas of focus to make happen.

Dave: The Early Warnings for All (E4All) initiative, which we discussed earlier, is of course important to us, and it continues to be a focus. You have heard me say a couple of times "Together, we move forward", which is about how we take innovation and propagate it in an open and accessible way. We need to keep innovating, because this drives where we will be in a decade from now (and onwards). We recognise the pressure organisations of all types face with their use of resources, and we want to support organisations in the public and private sector to make their resource use as efficient as possible. We need to consolidate and share what we do to help realise these efficiencies.

Tracy: A key point I'd like to stress, linked to what Dave has just said, is the importance of data aggregation, to turn raw data into intelligence. We hope that AI can accelerate this process. We want to empower people to make their areas of responsibility resilient, and technology helps us to achieve this. we believe we have a great opportunity to benefit people and society.

Gareth: Thank you very much for this overview, Dave and Tracy. The references you have made to having an open platform and being able to appropriately share data for the benefit of all is certainly a laudable goal.

Lorenzo, perhaps we can now focus in more detail on one of the areas that we have touched upon so far in this interview, about the involvement of Everbridge to support disaster risk reduction with your population alerting and communications systems. Various UNDRR publications released in 2022 and 2023 describe how the world is not on track to achieve the seven main targets of the Sendai Framework for Disaster Risk Reduction 2015-2030:

> **Box 1. Targets of the Sendai Framework**
>
> (a) Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015.
>
> (b) Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 in the decade 2020–2030 compared to the period 2005–2015.
>
> (c) Reduce direct disaster economic loss in relation to global gross domestic product (GDP) by 2030.
>
> (d) Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
>
> (e) Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.
>
> (f) Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030.
>
> (g) Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

Source: the Sendai Framework

Target (g) of the Framework is the one that I'd like to focus on in our discussion (which Tracy mentioned just now), and the Early Warnings for All (EW4All) initiative.

During an interview I conducted with Ms Mizutori, the ex-Head of UNDRR, in November 2023 we discussed the importance of the E4All initiative and its four pillars:
1. understanding risk, with disaster risk knowledge and management (which is being led by UNDRR).
2. forecasting and monitoring (led by WMO (the World Meteorological Organization).
3. warning dissemination and communication (led by ITU, the International Telecommunications Union).
4. action on the ground, focusing on preparedness and response capabilities (led by IFRC, the International Federation of the Red Cross).

I know that Everbridge is an active member of the International Telecommunications Union (ITU) and a member of the UNDRR Private Sector Alliance for Disaster Resilient Societies (ARISE), and also that Everbridge is supporting the E4All initiative with solutions including population alerting and communications, incident management solutions, emergency response systems and data analysis tools.

Figure 1: Budget overview for the four Pillars of the Early Warnings for All Initiative

Early Warnings for All Action Plan unveiled at COP27 (Source: UNDRR)

Your publication Increasing Societal Resilience describes how Everbridge is setting the standard for next-generation population alerting systems (which links to what Dave and Tracy referred to earlier). Is your population alerting solution one of a range of solutions being used for the global E4All initiative (perhaps linking to the point we discussed earlier about openness)? What are some of the next-generation features that you are working on? Whilst appreciating the value of innovation, are there certain forms of "old" technology that are still valid?

Lorenzo: Everbridge is delighted to be involved in the E4All initiative. As you have explained, there are various aspects to the initiative; our engagement is particularly focusing on the third pillar of warning dissemination and communication, and we hope we can keep things simple for the technical and policy requirements that contribute towards the objective of this pillar.

As you have mentioned, we are working with the International Telecommunications Union (ITU) – part of this engagement is to create a cell broadcast mandate or standard. A key concept to the approach we are taking is that the primary system today to have in place universally in all countries for warning dissemination and communication is a cell broadcast type of solution. This approach can be thought of as "old tech", and it is comparatively simple to other options to set up. A cell broadcast system does not suffer congestion, and it is tried and tested technology.

It works with known (and usually already existing) infrastructure of telecoms towers, which usually (but not always) exist even in remote places, and it is effective at providing good coverage to everyone.

Noting that a cell broadcast mandate or standard is our main goal in partnership with the ITU and its members, we are also looking at what other technologies may be applicable and appropriate to use. A second option which is feasible today, if it is agreed as appropriate to use, is location-based SMS / text technology. This technology is different to cell broadcasting because it uses SMS channels to send a message to designated recipients. Location-based SMS is designed to allow recipients of such messages to be able to send a message back to the sender – for example, confirming that they have reached a safe location. Cell broadcasting does not allow this because it is a one-way broadcast. Something to bear in mind with SMS technology is that the delivery of mass messages can potentially lead to congestion on the mobile network. SMS messages need to be short and simple. As an example of a use case for this type of solution, we can track whether people in affected areas have been able to move away from a disaster threat or impacted area.

Gareth: Thanks for this insight into the work currently underway on E4All solutions for warning dissemination and communication, Lorenzo. I have set up and used an SMS technology solution similar to the one you refer to in business environments to support crisis communications to people who work for a business when a crisis occurs. I have used an administration console that allows system administrators to tailor SMS messages being sent (including in multiple languages), and to determine whether a follow-up by SMS is required if there is no response, how long to give recipients before you to follow up to contact them again and so on. I also remember having the option in the system for it to call people in the business to check that they are safe, but I can imagine that for millions of people this would not be advisable as it can clog up a network.

Lorenzo: The administration of such a solution is key. Our platform allows administrators to tailor SMS messaging and communications in a way that works best for them. As you say, automated calling to lots of people in a community is not feasible, as it can jam the comms system (it can work in a business environment / a controlled group of people). For large-scale public messaging, we work closely with the Common Alerting Protocol (CAP). CAP is useful, but it is not for everyone. Some organisations / groups prefer to use their own specific communications protocols.

*Both of these solutions are available. They are, I would suggest, the "top two" solutions. I've been involved with a few other ideas that are being discussed as well. A promising new idea, which we need to do more research into (which is linked to our ethos of innovation at Everbridge that Dave and Tracy have described), is a chat bot that can be connected to a cell broadcast. The idea is that, together with a cell broadcast message, a recipient can receive a link which leads them to a chat bot, with which you can obtain advice about the particular situation close to you.
The goal is to make the process effective and efficient, in a way that would otherwise not be feasible or practical. In 2023 we have filed a provision patent on a solution for this.*

It works through existing telecoms infrastructure, and we can support people in large numbers which a Call Centre would struggle with.

Gareth: It's interesting to see this example of using AI technology. I am sure it must need a lot of detail to feed the AI engine so that the right kind of advice can be offered. For example, what is the hazard / event, where specifically are people and as a result what kind of advice should be offered to them. It's about providing appropriate advice, and people then need to decide what they do. Plus, you want to ensure that the technology itself is resilient – that, if tens of thousands of people were interacting with it, that it does not crash on them.

Lorenzo: Resilience of such as solution is key, as you rightly say: there is no space for mistakes or system failures. I believe that these kinds of services can add value, whilst always appreciating the need for them to be extremely resilient. The solutions of cell broadcast and SMS location service do work, but for people to receive advice, we want to see if we can set a new standard that keeps people safe and saves lives.

An AI solution needs to be trained and continually improved with credible data, and we need to go through partnerships to ensure privacy, the quality of data and all related aspects. It takes time to evolve.

Gareth: I wonder about the idea of training AI with near misses and potential events that did not occur. I also wonder about how this type of solution can be integrated into the way that emergency communications and advice in different countries is communicated to the public. For example, [Australia has worked on parts of its emergency alerts and rating systems](link). Other countries pursue different approaches. I can imagine that an AI chat bot solution would need to be synchronised with national / state approaches (which change over time). Perhaps there are opportunities to standardise and improve this type of criteria and alerts rating around world, and also to introduce them in places where no such mechanisms exist.

Lorenzo: It will be interesting to see how things evolve in this space. Local knowledge is always key and whilst it introduces complexity to a system, we have to appreciate local nuances. I wonder about the potential for models that can be applied globally. Engagement with scientists and communities can give us statistically relevant data to test, and then see how best an alerts solution can work. Trials need to take enough time, and we need to progress with this initiative.
You mentioned Australia – I know there is an interest in this country for a chatbot solution.

Gareth: I wonder also about how emergency comms can best work in remote places, and small islands such as the Small Island Developing States (SIDS) are part of my interest here (which we touched upon earlier). Ilan Kelman and I are involved with some resilience initiatives for SIDS, such as [the SIDS Future Forum 2024](link).

I often wonder about the opportunities small islands may have to trial and adopt new solutions, as a global community that can perhaps also trial local adaptations as required. SIDS and other small islands are spread all around the world and they have urban societies as well as very remote communities in archipelagos.

Lorenzo: Thanks for raising this point. I have seen common characteristics to what small islands experience. There needs to be common consensus on how to move forward.

For example, we have implemented a particular system in Trinidad and Tobago, which is a cloud-based solution for alerts, which was their preference for how to engage with the public. The cloud-based system is economic for them but has very good capabilities. In another example, the island of Mauritius uses the front end of our system to connect to signage without (currently) using the cell broadcasting system.

Some people talk about satellite communications as an option. For very remote locations, maybe satellites can support emergency communications, but I don't think they are the solution for everywhere, not yet at least. They do not work well when people are inside houses or where the signal is very low. Thus, it is not so easy, yet, to use them for a mass communications service.

Gareth: I think a review of solution options can benefit from using systems thinking, to ensure that all aspects are considered and put into context. In the case of satellites, we know they can be valuable for certain purposes such as for Earth observations. It is about using the right tech for the need.

Lorenzo: Yes, I agree. Existing telephony technology and infrastructure can be used and also built upon in a cost-efficient way. Most countries and states are using cell broadcasting.

Gareth: Using systems thinking encourages us to think about various ways to communicate with people. Cell-based broadcasts can, I believe, work alongside and be linked to sirens to produce the right alert sounds for a particular threat, as well as other audible or visual solutions. There are also benefits to having networks of volunteers who go and alert people / check to see if they are safe.

Lorenzo: It is important to have well thought through alerts systems. If you know how to structure the front end you can connect your alerting system to sirens and other mediums. Consider the Netherlands as an example, a country that is arguably at the forefront of emergency broadcast systems. They have integrated alerts into the digital display signs across their train station network, so that emergency messages can be displayed on them.

Gareth: Thanks for providing these examples of Mauritius (a member of the SIDS network) and the Netherlands, Lorenzo – this is interesting to know. I also think of the testing of mass broadcasting and alerting systems. In April 2023, I was one of millions of people in the UK who received a test emergency alert from the UK government. It emitted a loud siren sound on our mobile phones, I remember, which I thought was a good idea (it made me think about whether a solution might provide different sound-based alerts for different situations). We were all made well aware about the forthcoming test before it happened, so I hope that no one was caught by surprise by it (I certainly knew it was planned, as did everyone I spoke with about it). I thought that it was a good test to carry out – part of caring for society. Was Everbridge involved in this UK test?

Lorenzo: Yes, this UK nationwide test in 2023 used the Everbridge solution. It was interesting to see the implementation of the UK system, which is a cell broadcast. The loud siren sound you heard took a long time to develop / agree, and it required agreements with phone manufacturers and the UK mobile network operators (who are crucial to everything, I must stress). There were some important learnings from this test. For example, one of the UK mobile network operators did not have their network set up appropriately for it. Some of the UK press were concerned about it – they were thinking about potential societal problems. It's important to think about all aspects of using such an emergency alert system, whilst acknowledging how best to move forwards and always remembering that it is focused on saving lives.

It is vital to test emergency communications systems – in small groups and as mass broadcasts. We keep seeing disaster situations occurring around the world, and we need to be ready for them, which includes effective public alerts in line with the E4All initiative. Going back to the example of the Netherlands, they applied their first cell broadcast in, I think, 2011. They know how to alert their people when emergencies happen. For example, their communications during the widespread floods across northern Europe in 2021 helped to keep people safe (other European countries struggled with this at the time).

Gareth: It will be interesting to see where things are heading, Lorenzo, and how lessons are being learned across countries.

Lorenzo: My team in conjunction with a team at UCL have produced a report about resiliency policy, which was launched in March 2024. It is a descriptive report that offers guidance and a collation of examples. It tackles policy development and learnings from systems that are being used, and it is aimed at practitioners who need to implement solutions.

The report focuses on geographic examples of the US, Japan and the EU – with each geographic area representing good examples of how they are working to protect their populations. Japan, for example, was amongst the first countries to implement this type of system. The US has had alerting systems in place before mobile phone networks, through TV sets. The EU has done a lot of work on regulations.

Gareth: This report seems like a good example of the private sector collaborating with academia. How are you thinking of using the report in terms of policy advancement and advice to governments and the ITU?

Lorenzo: We hope to discuss the report's finding with governments, to discuss the solutions we have researched and whether similar solutions can be implemented to protect their people.
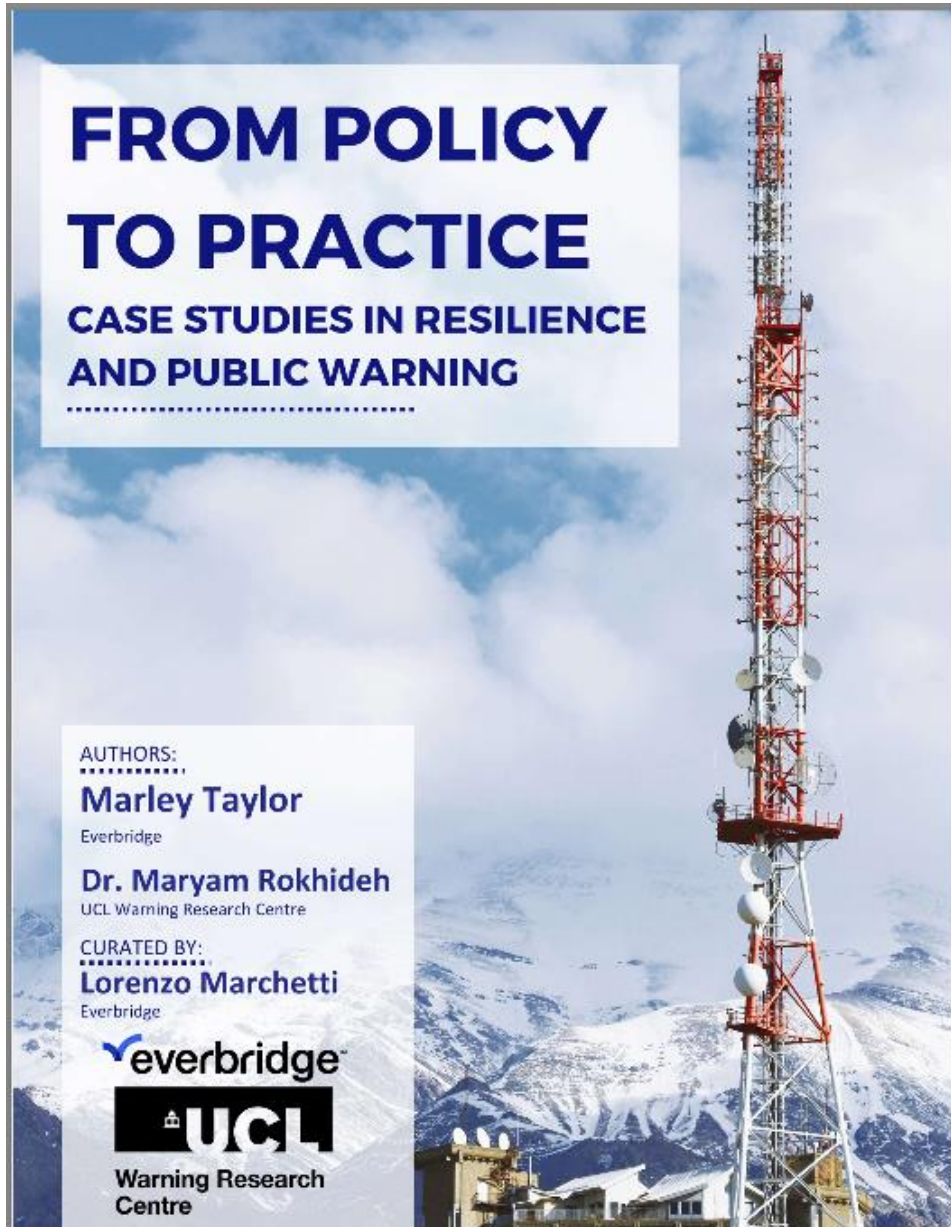
Gareth: It's great to see the creation of this report, Lorenzo.
Perhaps we can talk about different contexts to where people live now. Emergency alerting solutions are of course as applicable to people in urban environments as they are to people who live in remote locations. I have seen how in dense cities like Tokyo, government adverts in subway cars about disaster risk help play their part to keep the public aware of what to do in an emergency.

Various opportunities exist to broadcast alerts – be they in the subway or the train or bus network (which links to your earlier point about the Netherlands). On a remote small island or in an area that does not have advanced infrastructure, it may be a case of using sirens and perhaps providing a volunteers network with guidance to help their community.

Lorenzo: We have to appreciate and understand the different ways that we can engage with people, and as part of this we always need to consider financing for these initiatives. Global solutions can be challenging to achieve, with national funding requirements. We are still spending money on dealing with the after-effects, and we are still not investing enough in prevention.

Gareth: UNDRR keeps saying that we are not investing enough in preventative action, and I wonder if more upfront financing will become apparent through the E4All initiative as well as others. One of the things we talk about in our Disasters Avoided initiative is to learn from good, positive cases where upfront action works, and to document these. This includes highlighting examples of near misses where proactive action was taken to get populations and communities ready.

Going back to my point about using systems thinking, I think of financing as being circular, in that it needs to support ongoing management and maintenance in the way that is managed by locals.

Lorenzo: There is a lot that I think we can learn from the defence sector and the military around the world. They are always thinking about "What if?" scenarios and because of this they are prepared for all sorts of eventualities.

A key point for me is there has to be a sense of urgency to this matter, and I hope that we see good outcomes from the E4All initiative.

Gareth: I wonder about the sense of urgency also. We saw a real sense of urgency when we had to deal with the COVID-19 pandemic; I wonder if we can have the same mindset to avoiding disasters, which includes effective population alerting and communications systems.

You touched upon data privacy earlier as well, which I'd like to briefly follow up on. This is of course vital, and I'd be interested in your views on the key points to it for population alerting and communications systems.

Lorenzo, Dave and Tracy: For us, the focus on data privacy is simple. Our public alerting systems do not see any personal data, which is intentional. Our messaging alerts go through mobile network operators. Our system only sees the country code which helps guide us for the language to use (whilst noting that there can be exceptions); we don't see people's phone numbers – the mobile network operators have this data. For cell broadcasts, we know the percentage of messages that are delivered, but we don't know how many people receive them.

The Disasters Avoided project highlights examples of proactive action around the world to avoid disasters.

To find this information we need the support of the mobile network operator. Mobile network operators of course treat personal data very carefully. Location-based SMS / text technology can allow us to track this data, which always needs to be treated carefully if so.

Gareth: I suppose people also have a choice to opt out of receiving emergency alert messages if they want to?

Lorenzo: For sure. [The UK government provides opt-out instructions in their communications, for example](). The guidance is specific to each type of phone. Phone producers have these settings so that individuals can choose to opt out if they want to (if people de-activate these settings they won't receive the emergency notifications).

Gareth: What about the scenario of when people travel, and their phone joins a mobile network operator in the place they are visiting. Do they receive the alerts from that local area?

Lorenzo: I think it depends on the agreements in each country, which gets into how laws are governed.

Gareth: Are yourselves at Everbridge working with other providers of this type of technology as part of the E4All initiative?

Lorenzo: We are indeed working with other solutions providers. We work in many countries in the world, and we also partner with different organisations (for example, our work in the private sector that you touched upon earlier, to help them keep their employees and those in their supply chain safe).

Gareth: Thank you very much for your time, Dave, Tracy and Lorenzo. I can clearly see that there is a lot of positive activity taking place for Everbridge at the moment, and it is really positive to see that your ethos of striving for good business and societal outcomes can be aligned. I am looking forward to seeing how your ongoing work for the E4All initiative progresses.